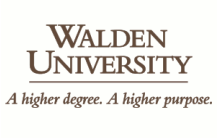

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The impact of a professional learning community on student achievement

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COLLEGE OF EDUCATION

This is to certify that the doctoral study by

Brandon Carter

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2008

ABSTRACT

The Impact of a Professional Learning Community
On Student Achievement

By

Brandon S. Carter
Ed.S, Valdosta State University, 2004
M.Ed., Valdosta State University, 2001
BS, Valdosta State University, 2000

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

Administrative Leadership

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December 2008

ABSTRACT

Professional learning communities (PLC) have the potential to strengthen students' academic achievement. An academic pyramid of interventions, one aspect of PLCs, may be especially helpful in schools where subgroups of students are underperforming relative to other students on standardized testing. This quantitative, one-group, pretest - posttest study examined the impact of implementing an academic pyramid of interventions as part of a PLC on middle school student academic achievement. The 100 students from grade 7 and 8 who participated in the study were identified by teachers as being at-risk for success on the Criterion Referenced Competency Test (CRCT). The reading and math test scores from the CRCT were extracted for data analysis. The researcher used a repeated-measures *t* test to compare the mean pretest and posttest scores. Bivariate correlations were conducted to determine the relationship between math and reading scores at grades 7 and 8. Results indicated that reading scores significantly increased across time ($p < .001$). Math scores also increased but the difference was not statistically significant. All correlations were significant ($p<.05$). Overall, the results indicated that implementing a PLC improved the standardized test scores of at risk students. These results have potential implications for social change in that all students will be better prepared for success throughout their academic career. These implications also suggest that when teachers work collaboratively within a PLC they will better meet the academic needs of all subgroups of students, especially those identified as at risk.

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DEDICATION

I would like to dedicate my doctoral study to God who made this journey even possible, gave me the determination to complete this process, and the willingness to accept constructive criticism along the way.

I would like to dedicate my doctoral study to my mother who has always believed in me, provided more than enough resources for me to be successful, and more than anything instilled values in me to be the best possible son, father, brother, and doctoral student that I could be.

I would like to dedicate my doctoral study to my father who has been the ultimate role model for practically every aspect of my life, supported me in every way imaginable, and most of all been the best friend any man could ask for.

I would like to dedicate my doctoral study to my sister who has always encouraged me and been my biggest cheerleader regardless of the situation.

I would like to dedicate my doctoral study to my son (my best buddy) with who I now will be playing many days of golf, baseball, basketball, and football.

I would like to dedicate my doctoral study to my new baby daughter who smiles at me when I come in from work every day and has reminded me where my priorities in life should be.

Finally, I would like to dedicate my doctoral study to my wife, Dr. Karla Z. Carter, who is the most amazing woman in the world. Without her, I would probably not have made it to this stage in this journey. Her unlimited love and support as a wife and mother are unsurpassed by any and more than I deserve. Thank you Karla. I love you.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

According to Hord (1997), the term professional learning community (PLC) describes a school staff that works collaboratively towards their commitment of student achievement. Hord pointed out that among the teachers in the school there is a shared vision, shared working environment, shared learning experiences, shared decision making, and open door policy to their classrooms with respect to other educators coming in for observations. In one last description of PLCs, Hord identified a PLC as a powerful and potent method for school improvement.

A PLC is defined by distinct characteristics and attributes. Schools seeking to implement a PLC must foster a collaborative environment and begin to shift the focus of their efforts from teaching to learning (DuFour & Eaker, 1998). "PLCs have become one of the most talked about ideas in education today. Many K-12 schools are working to become PLCs in the hope that student learning will improve" (Thompson, Gregg, & Niska, 2004, p. 35). According to Dufour and Eaker (2002),

> Schools that function as PLCs are always characterized by a collaborative culture. Teacher isolation is replaced with collaborative processes that are deeply embedded into the daily life of the school. Members of a PLC are not invited to work to work with colleagues: they are called upon to be contributing members of a collective effort to improve the school's capacity to help all students learn at high levels. (p. 5)

Schools seeking to function effectively as a PLC must foster and maintain the appropriate environment, promote collaboration, and provide adequate resources for teachers to contribute to the learning community.

Background of Study

DuFour and Eaker (2005) stated that schools must keep three big questions in mind to keep the drive of implementation of a PLC at the forefront of all efforts. These three ideas include: ensuring that students learn, creating a culture of collaboration, and keeping a focus on results. In order to keep these ideas from fading, schools must develop a pyramid of interventions with a solid foundation, continually foster collegiality among the faculty and staff, and continue to review and analyze student achievement data to keep a focus on results.

DuFour and Eaker (2004) further suggested that schools hoping to become PLCs have to make a decision on what to do when it becomes evident that some kids are not learning essential skills. A true PLC reacts to this scenario by developing a pyramid of academic interventions (2004). “The details of this school-wide system designed to provide students with extra time and support during the school day vary from level to level but address the needs of struggling students at all levels of schooling” (p.94). At any level of schooling, the, “number of students involved at each level of the pyramid should diminish as intervention strategies approach the apex of the pyramid” (p. 209). The number of students receiving intense interventions in the top tiers of the pyramid should be relatively low when compared to the number of students in the first tier of the pyramid.

The concept of PLCs originated in the business world with the belief that all organizations can learn (Walker, 2002). One of the main goals of a PLC in an educational organization is increased student achievement for all students that will in turn have a positive impact on the students in the community to help promote positive social change.

More detailed evidence from the literature about the background of PLCs is discussed in chapter 2.

The researcher worked with learning communities within the school to help implement strategies to lead to positive school and eventual social change. The study has potential to influence positive social change. The potential for social change of this project will be gradual. The researcher thinks that first the school will realize a positive change. In turn, as the high school gets class after class of a better constituency of students, a better group of citizens will be produced to the community to fill job vacancies and be productive for the town and county.

Problem Statement

There is an issue that needed to be addressed at Brantley County Middle School with regard to a gap between the school's total student body standardized test scores and certain student subgroups and students that are identified as struggling learners. Schools across the U.S. are battling this issue of the achievement gap and trying to implement strategies to help close that gap. According to Spielhagen (2006), one school tried to solve the achievement gap issue by offering algebra to all eighth grade students to increase the math readiness level of students as they entered high school. Azzam (2007) reported that although the achievement gap has narrowed somewhat since the enactment of No Child Left Behind (NCLB) of 2001, the achievement gap in groups of students remains and needs addressing. Spielhagen (2007) reported that some schools that are offering algebra to only a select group of students need to examine their procedures because they may be contributing to the achievement gap that extends into high school and possibly even entrance into colleges. This is an issue that needed to be addressed

because test scores of all seventh and eighth grade students have an impact on the adequate yearly progress (AYP) status of the researcher's school. More specifically, the researcher's school's AYP status is impacted by both the total student body performance on the standardized test and the performance of the different subgroups of students within the school. Over the past several years, students who are members of sub-groups such as students with disabilities (SWD), economically disadvantaged students, or students identified by teachers as struggling learners have not kept pace in regards to test scores with the total student body. There are several procedures and strategies that educators try to employ to help struggling learners and at-risk students. Although educators implement these tactics, there still seems to be a large number of students not achieving what is expected of them on state mandated tests, especially students with disabilities in mathematics. What is not known is the root cause of the deficiency of the students scoring poorly on the standardized test and if the implementation of a PLC along with an academic pyramid of interventions will have a positive impact on student's test scores and the school's AYP status. This problem impacts schools on a local level, system level, and eventually a state level when adequate yearly progress reports are published each summer after spring testing.

Purpose Statement

The purpose of this pre-experimental study was to test the hypotheses that determined the impact of the implementation of a PLC on student achievement as measured by Georgia's state standardized test. The independent variable was described as the exposure to the academic strategies from the pyramid of interventions. The dependent variable was described as student achievement on the Criterion Referenced Competency

Test (CRCT) in the areas of math and reading. The researcher used 2 years of CRCT data from a group of about 100 students to determine if the academic strategies that were implemented have an impact on the students' academic performance on the CRCT in the areas of math and reading.

Theoretical Framework

In the attempt to implement a pyramid of interventions in a PLC, it is important to examine the way in which the organization behaves. There are leadership theories that attempted to describe why the leaders of an organization act on scenarios the way they do. To summarize this rationalization of decision-making, Owens (2001) asserted, “Decision-making practices are not so much the result of circumstances in a given organization as they are the choices of those in authority as to how the decision ought to be made” (p. 267). Theory itself is useless unless it is read, understood, and applied. Leaders must continue to learn about theories in order to describe what is going on in an organization, explain it to the stakeholders, and predict future events when given similar circumstances. Over the past decades, leadership theories have experienced shift in focus as they relate to decision-making (Owens, 2001). This shift has seen a constant increase in involvement of others when leaders make decision. Owens pointed to two factors for this increase in the involvement of decision-making by other personnel. These two factors are the constant growth and accelerating tempo of change in the world and the worldwide rise in expectations for increased democracy, personal freedom, individual respect and dignity, and opportunities for self-fulfillment.

One historical approach to organizational behavior is the bureaucratic view. Typically, bureaucratic behaviors include decisions and communication following a top-

down approach. For example, leaders, “maintain firm hierarchical control of authority, establish and maintain vertical communication, and add other supervisory and decision-making positions on an as needed basis” (Owens, 2001, p.62). This theory was mainly practiced in the late 1970s and became widespread during the school reform scene in the 1980s. Contemporary theories are now moving more towards a collaborative effort in the decision-making process.

Two other perspectives that follow a firm authoritarian approach are McGregor’s Theory X characteristics and Likert’s Management Theory as it relates to systems one through three. These two theories described workers in an organization as unhappy, irresponsible, unmotivated, fearful of management, and uninvolved in decision-making unless the decisions are specific to them and they have been given the okay from the leaders of the organization to make the decision (Owens, 2001). Recent practices and support in learning organizations has mirrored the description of Likert’s fourth system which identified the following characteristics of an organization:

1. Decision-making is widely dispersed,
2. Communication flows up, down, and laterally,
3. Motivation is by participation and rewards,
4. Extensive, friendly, superior-subordinate interaction exists,
5. High degrees of confidence and trust exists, and
6. Widespread responsibility for the control process exists. (Owens, p. 71)

Focusing or implementing decisions solely at either end of the spectrum can be erroneous. Leadership theories and styles range from authoritarian to the laissez-faire approach. One modern and effective remedy is the democratic approach (Owens, 2001).

When implemented, an observer in this type or organization would see decisions being made in groups, leaders suggesting job activities and the group choosing, groups obtaining pertinent and needed information in order to form a plan for a given situation, and objective evaluations (Lunenburg & Ornstein, 2004). A democratic led-learning organization has leaders that are in favor of involving others and value their input in the decision-making process. Subordinates are told the details about things impacting their job and invited to bring their ideas to the forefront that could help change the organization and increase student achievement.

The first three characteristics of a PLC echo the importance of shared decision-making. As referenced in Dufour and Eaker (1998), these three characteristics are shared values, collective inquiry, and collaborative teams. Dufour and Eaker also referenced five points that support the formation of a PLC based on shared decision-making and collaborative efforts. These five points include teachers collaborating to test and expand their ideas in their area of expertise, collaborating to reach better decisions and have ownership of those decisions, collaborating to work together and decrease the fear of risk-taking, collaborating to create a large variety of options available to teach and instruct students, and collaborating to improve a school's overall culture (Dufour & Eaker). The literature on PLCs continually points toward a movement away from a bureaucratic organization to an organization with shared decision-making. Dufour and Eaker (1998) support this in the following statement:

> Involving others in decision-making processes and empowering them to act on their ideas are two of the most significant and effective strategies used by capable leaders. Conversely, when improvement initiatives disintegrate, it is often because the leader made the mistake of trying to effect change alone without building a coalition of collaborators. (p. 185)

Shared decision-making will be the foundation by which the PLC at Brantley County Middle School is based upon. The administration will strive to include the staff in the decision-making process in a variety of methods. A newly formed school leadership team will serve as the first line of a communication outlet. Also, content focus groups and team leader meetings will have an impact on the instructional activities at Brantley Middle with the decisions that are reached by the members of these collaborative groups. Finally, the administration and the faculty will work collaboratively to design a pyramid of academic interventions.

Research Question

1. What is the impact of the implementation of a PLC and an academic pyramid of interventions on eighth grade students' CRCT test scores?

H_o1: There is no significant impact on CRCT test scores of eighth grade students with the implementation of a PLC and an academic pyramid of interventions.

H_a1: There is a significant impact on CRCT test scores of eighth grade students with the implementation of a PLC and an academic pyramid of interventions.

Population

Students in grades seven and eight at Brantley County Middle School were of interest to the researcher. The participants that make up the population in this study were located at the only middle school in the county which houses only two grade levels. The total student body at Brantley County Middle School numbered 550. The total number of seventh grade students at the researcher's school was 280. The total number of eighth grade students at the researcher's school was 270.

Sample

Sampling was conducted through stratification. Five teams of teachers identified 20 students from each of the academic teaching teams that are at risk for not meeting standards according to the Georgia CRCT. This process produced 100 students that participated in the study. The 100 students were selected for the study by the five teams of teachers determining the students to be at risk in terms of their potential for success on the CRCT. The sampling procedures were conducted by stratification due to the students' past performances on the CRCT and their current level of academic success. The sample size consisted of 100 total students.

Method

The label and design of this study is a quantitative one-group pretest – posttest. "This design includes a pre-test measure followed by a treatment and a post-test measure for a single group" (Creswell, 2003, p. 168). In a one-group preexperimental design, the researcher, "studies a single group and provides an intervention during the experiment" (Creswell, 2003, p. 167). Dooley (2001) stated, "One sort of pre-experimental design is the single-group, pretest – posttest design. In this design, the researcher measures one group twice, before and after an intervention" (p. 164).

More detailed discussions about the nature of the study are in chapter 3.

Data Collection

Data collection consisted of three phases. First, the school system received scores from the Georgia Department of Education, and the researcher gained permission from the superintendent of schools to utilize the data for the study. Secondly, teachers identified 100 at-risk students as determined by their potential for meeting standards on

the Georgia CRCT. Lastly, the test scores of the students selected were extracted from the data pool to use for analysis.

Data Analysis

The researcher used SPSS to run a repeated-measures *t* test for the study. “A repeated- measures study is one in which a single sample of individuals is measured more than once on the same dependent variable. The same subjects are used in all of the treatment conditions” (Gravetter & Wallnau, 2005, p. 275). The mean score and standard deviation of the group of students on both the pre and post-test were compared, analyzed, and reported when significantly different. The researcher determined if the data is significantly different through examination of the *t* statistic and the significance level.

Assumptions

The researcher conducted this quantitative study with three assumptions. First, the teachers employed at the researcher’s middle school would all follow protocol and implement the academic pyramid of interventions with the students they teach. Second, the teachers were all honest in the answering of the questions on the questionnaire about the pyramid of interventions. Third, the students involved in the study would put forth their best effort when they participate in the administration of the state mandated test.

Scope

This study was conducted in the only middle school in a small public school system located in southeast Georgia. The teachers at the school educate approximately 550 students. One hundred students were identified by the five teams of teachers that are considered to be at-risk when speaking in terms of success on the administration of Georgia’s CRCT. The middle school students are in grades seven and eight at the

researcher's school. The researcher in the study utilized a quantitative method while implementing a pretest posttest format to a single group for analysis.

Delimitations

There are a few specifics of this study that contribute to the parameters of the research and help establish boundaries for the experimental group. This study confined itself to the examining of the Reading and Mathematics sections of the Georgia state-wide administered CRCT. The tests also included science and social studies, but these two areas were not included in the study because at this point, they do not impact a school's AYP status. Also, the study confined itself to two grade levels because only seventh and eighth graders are housed at Brantley County Middle School. Out of approximately 550 students in the population of BCMS, a sample size of 100 students was used for this study. One additional limitation of the study would be the ethnic make-up of BCMS, which is approximately 95% white, 4% black, and 1% other. The results of the study would be hard pressed to apply to other schools in which the ethnicity differed greatly. Also, because of the size of the sample and the focused look at one group of eighth graders, the results may not be able to be generalized to other populations.

Limitations

Because only one school was examined, the results of the study cannot be generalized to any other population. The pre-identified at risk students created a sub-group that limits the application of the results of the study to other subgroups such as gifted students, students with disabilities, or accelerated learners. The highly homogenous make-up of the researcher's middle school limits the applicability of the study to other middle schools that may be more diverse in their population. Also, the researcher

conducted this study in his own middle school. The researcher had to protect the integrity of the study against personal bias and opinion.

Significance of the Study

The inspiration for this inquiry and the realization of the significance and implications of this study began when Brantley County Middle School met AYP requirements for the first time in the school's history. After 7 consecutive years of not making AYP, the new administration led the staff of BCMS to a school milestone for the first time in its existence. Making AYP for 1 year is not sufficient; rather, it takes yearly progress to sustain growth in student achievement. According to Lee, Smith, and Croninger (1995), in schools that were labeled PLCs due to their practices, students were found to have greater academic gains in all four of the main academic areas than students in non PLC schools and had less of an achievement gap among sub-groups of students. Upon searching for a leadership model or plan after a school needs assessment, the PLC concept or model was discovered and sought after. According to Lynn (1995), redesigning a school to reflect the characteristics of a PLC help to improve student achievement. In addition to adopting the PLC model, a more intensive effort was made to identify struggling students, create a school-wide pyramid of interventions, and examine the impact these interventions had on student achievement as measured by the CRCT.

The study also has potential to influence positive social change. The potential for social change of this project will be gradual. Every staff member benefited from the information of the study. The teachers benefited from the study because they are able to analyze the data from the students identified for the study and examine which students benefited from the interventions. Also, they are able to better identify students in the

future for similar studies or focused intervention programs. The administrators at the school benefited from the information because they are able to better equip the staff with certain skills, strategies, and information to prepare future groups of students that come through the middle school. First the school will realize a positive change. In turn, as the high school gets class after class of a better constituency of students, a better group of citizens will be produced to our community to fill job vacancies and be productive for the town and county. This study contributed to the body of knowledge needed to address this problem by assessing the effectiveness and impact a PLC has on the achievement of middle school students as measured by Georgia's state standardized test.

Definition of Terms

The following terms are vital for the understanding of the study.

PLC (PLC): An organization with a shared mission, collective inquiry, collaborative teams, action orientation, continuous improvement, and results orientation. (Dufour and Eaker, 1998, p. 25).

SLT (school leadership team): Decision-making team set up in the organization with one representative from each grade level, department, and/or teaching team. (Personal Interview, August 1, 2005).

Pyramid of Interventions: a school-wide sequenced set of academic interventions set up in increasing order of intensity and a lowered student to adult ratio from bottom to top. (Dufour and Eaker, 2004, p.209).

CFG (content focus group): Organized team meeting of the teachers from the same content (ex. Math teachers, Science teachers, etc) during which the team meets

during the school day while subs are provided for coverage. (Personal Interview, August 1, 2005).

SWD (students with disabilities): Students identified as having a learning disability (such as a specific learning disability in reading or mathematics) (Brantley County Middle School AYP Report, 2005).

CRCT (CRCT): Georgia's state-wide administered standardized test to students in grades 1-8 (Brantley County Middle School AYP Report, 2005).

At Risk Students: Students in danger of not meeting standards as measured by the Georgia Criterion Referenced Test. (Personal Interview, August 1, 2005).

Summary

Chapter 1 served as the introduction to this quantitative research study. Areas discussed in the introduction included the background, problem statement, purpose statement, research question, nature of the study, theoretical framework, definition of terms, assumptions, scope, delimitations, limitations, and the significance of the study. Chapter 2 provides an overall literature review of the doctoral study topic. Chapter 3 discusses the methodology utilized by the researcher. Chapters 4 and 5 conclude with discussion of the results, conclusion, data interpretation, and recommendations of the researcher.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter reviews the current literature on PLCs. The researcher discusses the literature in seven sections. The researcher provides an overview of the literature on the background of PLCs, the characteristics of PLCs, the importance of leadership in a PLC, the development of a pyramid of interventions within a PLC, the impact of a PLC on student achievement, an overview of the CRCT, and a review of related studies to the researcher's topic.

The background information on PLCs provides a description of the literature from the earlier work from Hord (1997) to the most recent work constructed on PLCs by DuFour and Eaker (2006). Depending on how the attributes are grouped, the literature consistently identified four to six common qualities of effective PLCs. The characteristics of PLCs section reveals these attributes and their descriptions found across many resources. The importance of leadership is echoed in many different sources. The section on leadership is further broken down into the role of the principal and leadership style to identify important components of each in the area of leadership in a PLC. One of the most important components of a PLC is an academic pyramid of interventions. The pyramid of interventions section describes what a pyramid is and also looks at the stages a school must go through in order to develop an effective pyramid. Student achievement is the number one concern of all schools; therefore, the section on student achievement shows the relationship between a PLC and academic gains of students. Also, the measuring stick of today's bar for student achievement is the CRCT. This section addresses the purpose and specifics of the yearly test. Lastly, the researcher discusses six

related studies that span the educational research arena to include mixed-method studies, qualitative studies, and quantitative studies.

Background

The concept of PLCs and communities of practice originated in the business world with the belief that all organizations can learn (Walker, 2002). PLCs make it possible for students, teachers, and administrators to engage in learning in a nurturing environment (Hord, 1997). The goal of a PLC is increased student achievement for all students. “PLCs are the places where people help each other in developing and growing. They have a positive impact on staff’s morale and practice, and they make a significant difference to students’ learning” (Bubb, 2006, p. 19). A continuous effort to become more collaborative in nature and to utilize a shared decision-making leadership model is vital for the success of a PLC. Rosenholtz (1989) suggested that staff members who felt they had the support and guidance of their administration and peers during their teaching process were more committed to doing a good job than those staff members who did not feel like they had a network of support. This finding also led Rosenholtz to identify those teachers as staff members having success in their classroom and staying in the teaching profession for longer periods of time. According to Owens (2001), healthy organizations that are focused on continuous improvement value input from people in the organization. Bezzina and Testa (2005) stated that increasing collaboration among teachers and schools is the vehicle to produce positive results. According to Bezzina (2006), this shift from teacher isolation to teacher collaboration will require school staffs to confront traditional practices while simultaneously having a profound affect on the attitude of staff members. McLaughlin and Talbert (1993) also pointed out that this collaboration among teachers

occurred when structured time was provided for staff members to work together to analyze data, plan units, critique but not evaluate each others performance in the classroom, and develop a common body of knowledge about the students they were teaching.

> Schools seeking to implement a PLC must foster a collaborative environment and begin to shift the focus of their efforts from teaching to learning. "PLCs have become one of the most talked about ideas in education today. Many K-12 schools are working to become PLCs in the hope that student learning will improve" (Thompson, Gregg, & Niska, 2004, p. 35).

Becoming a PLC requires a shift in the focus of a staff from seclusion to collaboration and includes a stronger focus on learning. Administrators find themselves examining and observing the students and their progress as much as observing the teachers in the building.

In education, knowledge of effective school improvement should be based on decisions that are driven by data. "Cultivating communities of practice in strategic areas is a way to manage knowledge as an asset" (Wenger, McDermott, & Snyder, 2002, p. 6). With so many things to manage, the implementation of a PLC is a practical way for administrators to share decision-making, empower others, and make good quality data-driven decisions based on a particular group's area of expertise about a specific topic.

Building the collaborative culture of a PLC in a school is a must. "The fact that teachers collaborate will do nothing to improve a school. The purpose of collaboration can only be accomplished if the professionals engaged in collaboration are focused on the right things" (Dufour & Eaker, 2006, p. 91). Every school will foster its own culture, and the culture along with data, will drive practices and decisions within the school. One way

to optimize the impact of decision- making and foster a collaborative culture is to implement a PLC.

Schools that function as PLCs (PLC) are always characterized by a collaborative culture (DuFour & Eaker, 2002). In order to foster the growth of a collaborative culture and impact both student achievement and professional growth, the leaders of the school must take a stance to promote the vision of the learning community and be an active member of the PLC. Rosenholtz (1989) researched teacher effectiveness as it related to support of teachers and found that teachers who felt supported in their own professional growth and pedagogy were more committed and effective than teachers who felt that they did not have support in their profession from the building leaders and colleagues. In addition to being more effective, teachers who have chances to work together and discuss student learning and teacher practices are able to create a common curriculum and plan of action to maximize student learning. According to Dufour and Eaker (2002),

> Teams work together to clarify the intended outcomes of each grade level, course, or unit of instruction. They develop common assessments that they consider valid measures of student learning. They jointly analyze student achievement data, draw conclusions, and establish team improvement goals. They support one another and share strategies as they work together to accomplish goals that they could not achieve by working alone. (p. 5)

As teachers meet collaboratively with each other, the products that are produced for assessment and instruction are a combination of many teacher's minds and input rather than an individual's creation. The product from the group is so much more valuable than a single teacher's contribution.

Schools seeking to implement a PLC must foster a collaborative environment and begin to shift the focus of their efforts from teaching to learning. There are many

practical applications that stem from studying and implementing a PLC in a learning organization (Dufour & Eaker, 2004). It should be the goal of any school to apply the concepts of a PLC in a practical manner and implement the attributes that are pertinent to the individual school. A true PLC will begin to spawn high-performing, collaborative teams. According to Dufour and Eaker (2002),

> Schools that function as PLCs are always characterized by a collaborative culture. Teacher isolation is replaced with collaborative processes that are deeply embedded into the daily life of the school. Members of a PLC are not invited to work with colleagues: they are called upon to be contributing members of a collective effort to improve the school's capacity to help all students learn at high levels. (p. 5)

The mindset of the staff becomes focused completely on the learning that is taking place in the facility where the PLC is implemented. The level of awareness is heightened and the staff is more aware of student needs.

PLCs are action oriented, and the members of the learning community turn hopes into action and visions into reality (Dufour & Eaker, 1998). When collaborative teams are formed, the formation and implementation of an action plan is the next step. Members of a PLC acknowledge that learning takes place in the context of a situation, not the planning stages. Any type of passive behavior or inactivity is discouraged. One concept that coincides with the preference of action is the willingness to change or experiment. This willingness to experiment is accompanied by a tolerance for results that may be contrary to what was anticipated (Dufour & Eaker). However, in the event of an unforeseen conclusion, the collaborative team must reconvene and go through the four steps of the group planning system once more. There are numerous factors that determine how supportive conditions are in a particular school. For example, the details surrounding

the time, place, and extent of a group meeting need to be established ahead of time and communicated with the staff in order for the PLC to function productively. In addition to the specific factors and physical limitations of a school, people capacities also play a role in the support of a PLC. Louis and Kruse (1995) pointed to an individual's willingness to accept feedback, work toward improvement, trust other colleagues, and respect the goal of the group as important factors of supportive conditions. Being open to constructive criticism, continuous improvement, having trust in one another, and working to a pre-determined group goal are very important people capacities in a PLC.

When attempting to implement a PLC at a school, several guiding factors and questions should be addressed. Some of these factors include the difference in a PLC and traditional schools, the shifting of cultural factors to help facilitate the forming of a PLC, the attributes that are evident in a PLC, and the role of the leaders of the school that is attempting to transform itself into a PLC.

PLCs set themselves apart from traditional schools in that they function from a foundation of true collaboration. Some traditional schools are be characterized by teachers or departments feeling isolated while a PLC works from the standpoint of teams and/or teachers collaborating. There is a shift from the primary focus of a school from teaching to student learning (DuFour & Eaker, 2002). Finally, in a PLC, time is considered the variable and not held constant. Efforts are focused on the acquisition of the most meaningful content items, and strategies are sought after when students do not acquire the pertinent information needed to succeed.

A shift in the mindset of the personnel at a school must take place if a PLC is to be implemented effectively. Teachers must begin to consider that the sum of a group's

efforts is greater than any one part that is contributed by an individual. Also, teachers must continually look for new, improved, or best practices. This quest for best practices, sometimes referred to as collective inquiry, is one of the most fundamental cultural shifts that occur as schools become PLCs (DuFour & Eaker, 2002). Schools must keep in mind that

> What is now envisioned is a quantum leap toward the creation of a setting where inquiry is normal and the conditions of the workplace support continuous, collegial inquiry that involves the total faculty, builds community, serves to increase student learning through the study of instruction and curriculum, and seeks to provide a nurturing organization through collective study of the health of the school. (Joyce & Calhoun, 1995, p. 51)

Collective inquiry has become the norm and expectation rather than just a neat idea that people want to try. Also, it has become the expectation that the administrators in a building are competent enough to set up and support the conditions necessary to support collaboration and collective inquiry.

Characteristics

A continuous effort to become more collaborative in nature and to utilize a shared decision-making leadership model is vital for the success of a PLC. “PLCs are the places where people help each other in developing and growing. They have a positive impact on staff’s morale and practice, and they make a significant difference to students’ learning” (Bubb, 2006, p. 19). According to Owens (2001), healthy organizations that are focused on continuous improvement value input from people in the organization. Bezzina and Testa (2005) stated that increasing collaboration among teachers and schools is the vehicle to produce positive results. According to Bezzina (2006), this shift from teacher isolation to teacher collaboration will require staffs of schools to confront traditional

practices while simultaneously having a profound impact on the attitude of staff members.

According to DuFour and Eaker (1998), if schools are to be transformed into PLCs that can promote positive social change, leaders must, “acknowledge the change in the traditional mindset of education’s relationship to society to that of today’s knowledge based society, and also come to terms with the fact that assumptions about schools are drastically different than in the past” (p. 20). Also, Dufour and Eaker pointed out that the characteristics that define a PLC help lead to an increase in student achievement. The characteristics that describe a PLC are a shared belief system, collective inquiry, collaborative teams, action orientation, continuous improvement, and results orientation (DuFour & Eaker). As far as having an impact on student achievement, the last quality, results orientation, may be the most important aspect of a PLC. By monitoring this quality, the leaders of a school ensure that the continuous improvement process is based on learning and results and not just good intentions.

One strategy for sustained, substantive school improvement is developing the ability of school personnel to function as a PLC (PLC) (DuFour & Eaker, 1998). After critical analysis of the literature, there is a common trend that the researchers agree upon. That is, if a school is to implement and sustain a PLC, six components must be consistent and pervasive throughout the school (DuFour & Eaker, 2002). These six components are a shared belief system, collective inquiry, collaborative teams, action orientation, continuous improvement, and results orientation.

An agreed upon and shared vision is also an important attribute to successful PLCs. Traditionally, schools have created vision statements that are almost a paragraph in

length that nobody even remembers. Contrary to this practice, a vision statement of a PLC is short, precise, and focused on learning and professional growth. One key component of the vision of a true PLC is the never-changing focus on the learning of the students in the building (Louis & Kruse, 1995). Sharing a vision is a particular mental image of what is important to an individual and to an organization (Southwest Educational Development Laboratory, 2001). The shared vision in a PLC revolves around increasing student learning through collaboration.

Ownership in the formation and implementation of a shared mission and vision through common values is critical to a PLC. A school cannot function as a PLC until its staff has grappled with the questions that provide direction both for the school as an organization and the individuals within it (Dufour & Eaker, 2002). In order for a transformation to occur, schools must answer questions that address their purpose, targets, and timelines. The collective response of a group's answer to these topics provides the foundation of the initial stages of a PLC.

Collective inquiry, was summarized by Sergiovanni (1994),

> As principals and teachers inquire together, they create community. Inquiry helps them to overcome chasms caused by various specializations of grade level and subject matter. Inquiry forces debate about what is important. Inquiry promotes understanding and appreciation for the work of others. Also, inquiry helps principals and teachers create the ties that bond them together as a special group and that bind them to a shared set of ideas. Inquiry helps teachers and administrators become a community of learners. (p.55)

In the formation of a PLC, the groups of teachers benefit from the input from each individual. In a PLC, the staff continually works together (Louis & Kruse, 1995). Also, when meeting times of the PLC are arranged in a manner such as during the school day,

teachers do not view the concept as an additional requirement and therefore are more productive.

The shared belief system mentioned above is the foundation of a PLC, and the second component, collective inquiry, is the engine of improvement, growth, and renewal in a PLC (Dufour & Eaker, 1998). The continuous search for new answers or improvement in the organization's current status quo is most effective when conducted collectively. Members of a PLC must collaborate and look for improvement strategies together. Also, the members of a PLC must realize that the knowledge of the actual search and its process are sometimes more valuable than the answer itself. Dufour and Eaker pointed to four steps a group progresses through as collective inquiry takes place.

1. Public reflection: members of the team talk about their assumptions and beliefs and challenge each other gently but relentlessly.

2. Shared meaning: the team arrives at common ground (shared insights).

3. Joint planning: the team designs action steps (an initiative to test their shared insights).

4. Coordinated action: the team carries out the action plan (the action need not be joint action but can be carried out independently by the members of the group).

This cycle is repeated when needed and when new questions arise. Eventually, the increased awareness of this process helps in the shift of attitudes and beliefs in a learning organization. Obviously, if a group of adults is involved in collective inquiry, they must be able to function as a part of a collaborative team.

Schools that function as a PLC are always characterized by a collaborative culture (Dufour & Eaker, 2002). Much like collective inquiry, the collaborative teams of a PLC

are the vehicle in which decisions are discussed, debated, and decided upon. Members of a collaborative team are not invited; rather they are called upon by the leaders of an organization to help improve the school's capacity to help all students learn (Dufour & Eaker). Teams should be provided time to meet, access to information, and parameters as they proceed with collective inquiry. As members of the collaborative team work together, they determine best practices that impact student learning and enhance their own professional expertise.

PLCs are action oriented, and the members of the learning community turn hopes into action and visions into reality (Dufour & Eaker, 1998). When collaborative teams are formed, the formation and implementation of an action plan is the next step. Members of a PLC acknowledge that learning takes place in the context of a situation, not the planning stages. Any type of passive behavior or inactivity is discouraged. One concept that coincides with the preference of action is the willingness to change or experiment. This willingness to experiment is accompanied by a tolerance for results that may be contrary to what was anticipated (Dufour & Eaker). If the results experienced are contrary to what was expected, then the staff of the PLC must reconvene and revise the action plan to try to find the root cause of the issue that are facing.

Constant rejuvenation and refining of skills is a necessity in a PLC. "Teachers need an environment that values and supports hard work, the acceptance of challenging tasks, risk taking, and the promotion of growth" (Midgley & Wood, 1993, p. 252). Collaborative teams must continually bring new ideas to the table and ponder questions for collective inquiry. Questions about student learning and achievement must be addressed, and a school's pyramid of interventions must be continually reshaped to fit the

particular student body for the school year. Dufour and Eaker (1998) pointed out that continuous improvement requires that each member of the organization be engaged in considering several key questions including:

1. What is our fundamental purpose?
2. What do we hope to achieve?
3. What are our strategies for becoming better?
4. What criteria will we use to assess our improvement efforts?

An analogy of this fifth component of PLCs is when school reform efforts and the formation of a PLC are likened to a person going on a fad diet that lasts only a few months and a person choosing to stay in shape for life with a healthier overall lifestyle that must be monitored daily.

The sixth and last characteristic that continually surfaces in the current literature on PLCs is a focus on developing a results-oriented culture. Members of a PLC are not satisfied with lofty mission statements that create a blanket statement for all students when in fact all the students are never even addressed. Rather, members of a PLC base their efforts for school improvement on how student learning is affected. As Dufour and Eaker (2002) state in their discussion on a PLC developing a results-oriented culture in an organization:

> The focus on results forces them (members of a PLC) to delve deeper and to grapple with the questions that drive a PLC. Individually and collectively they ask: 1) If we truly believe all kids can learn, what is it that we want them to learn? 2) How can we be certain all students have learned it? 3) How can we respond to assist those students who are not mastering the intended outcomes? (p. 6)

In summary, regarding the characteristics of an effective PLC, Hord (1997) reported that the following attributes are present when a PLC is operating efficiently:

1. Facilitative participation of a principal that practices shared decision-making,
2. Creation of a focused and permanent vision,
3. Collective learning and problem solving on the part of the staff,
4. Observations by peers, colleagues, and teacher leaders for feedback, and
5. Support from the principal in terms of handling structural and people capacities.

Leadership

The area of leadership is discussed in three sections by the researcher. First the researcher discusses the role of a principal in a PLC. Second, the researcher discusses different leadership styles and how they relate to a PLC. Last, the researcher provides a summary of the area of leadership with regards to a PLC.

Role of the Principal

One of the most important aspects of the success of a PLC is the leader of the school (DuFour & Eaker, 2002). “In traditional schools, administrators are viewed as being in leadership positions and teachers are viewed as followers, but in a PLC, administrators are viewed as leaders of leaders” (DuFour & Eaker, p. 22). “The literature on educational leadership and school change recognized clearly the role and influence of the campus administrator. It seems clear that transforming the school organization into a learning community can be done only with the leader’s sanction and active nurturing of the entire staff’s development” (Hord, 1997, p. 14). DuFour and Eaker also pointed out that it takes the continual efforts and persistence of the leaders in a school to bring about true growth as a PLC that can eventually realize an increase in student achievement. Two suggestions provided by DuFour and Eaker are that the leaders in a school only try to

implement new initiatives that are aligned with the vision of the school and to protect, promote, and defend the schools' belief system. According to Hord, one way to look at what a PLC should look like in a school is to look at the principal of the school to see how he or she shares decision-making power. Carmichael (1982) also supported this point from the stance of shared decision-making being a must for a PLC to form because if the principal's position is so dominant so as not to allow input from the staff on decisions, there is never a chance for views to be opposed or creative thinking on the part of others to occur. Kleine-Kracht (1993) agreed in that administrators should seek solutions with staff members and not just deliver the answer to the staff.

All of the literature and research pointed to PLCs as a dynamic way to impact both student achievement and professional growth. A common theme throughout the information is a leader that promotes a collegial environment and shared decision-making. Louis and Kruse (1995) pointed out that supportive leadership that practices shared decision-making is a must to transform into a PLC. There would not be a need for a PLC if the concept did not do anything for the professional development of adults and the achievement of students. However, as Schmoker (2004) stated, there is no reason to delay the implementation of a structure (PLC) that stands to make an immediate difference in student achievement and requires only reasonable amount of time and resources. Hord (1997) attempted to answer these questions regarding why a staff should organize itself in a PLC and what the results of that arrangement will be with the following outcomes of PLCs for students:

1. A decreased dropout rate and fewer classes skipped,
2. Lower rates of absenteeism,

3. Increased learning that is distributed more equitably

4. Greater academic gains in the core content areas than in a traditional school, and

5. Smaller achievement gaps among students in different subgroups (p. 28).

The outcomes for staff members involved with a PLC include:

1. Reduction of teacher isolation,

2. Increased teacher commitment,

3. Increased knowledge of the content that is taught by teachers,

4. Higher morale and lower absenteeism,

5. Advances in adapting the teaching to the students and use of differentiation,

6. Commitment to making lasting changes (p. 27).

In order for the maximum impact on student achievement to be felt, administrators must be directly involved with the learning community. As with any organization or team, the results and performance of the members are first and foremost a reflection on the leader. It is for this reason that the leader of the school in which a PLC is being formed takes responsibility for leading the transformation and modeling the desired behaviors to ensure the desired results. As Uchiama and Wolf (2002) pointed out, principals can cultivate learning communities in their schools when they lead with heart. According to DuFour and Eaker (2002), schools need leadership from principals who focus on advancing student and staff learning. A leader that possesses certain qualities can facilitate transformation from a traditional school to a PLC. As highlighted by DuFour and Eaker (1998), these qualities include leading through a shared vision rather than rules and procedures, involving others in a shared decision-making process,

providing the pertinent information and parameters under which decisions can be made, and being able to respond to resisters of change. Prestine (1993) identified three factors that principals who are restructuring their schools to resemble a PLC need to possess. These three factors are the ability to share authority, to facilitate the work of other adults, and to actively participate in the learning community without playing the dominant role. Louis and Kruse (1995), point to six abilities when connecting the idea of the role of the leader in the development of the learning community:

1. Leadership in the center,
2. Teacher's classroom support,
3. A vision of a true professional community,
4. A culture of high intellectual quality,
5. Management of conflict, and
6. An inclusive community.

One point made under the description of these four qualities falls under the leader's ability to provide adequate information that is needed to make decisions. DuFour and Eaker (1998) pointed out, "Principals of learning communities certainly do more than delegate, empower, and then hope for the best. They provide staff members with relevant background information and research findings to help them arrive at informed opinions" (p. 186). Although principals alone can't transform a school into a PLC because it is a collective and collaborative effort, it is very likely that the transformation will never take place if there is not a capable and effective leader in place. According to Hord (1997), "Strong actions by the principal on behalf of community development are necessary.

Once the initiative is under way, it is also necessary for the principal to share leadership, power, authority, and decision making" (Hord, 1997, p. 53).

Also, principals of PLCs must foster the appropriate conditions for a PLC to function effectively. Boyd (1992) suggested that in order to be a productive PLC, both physical and personnel issues need to be accounted for and utilized efficiently. These two factors must be accounted for in order to optimize a PLCs' effectiveness.

Louis and Kruse (1995) as well as Boyd (1992) identified factors such as time to talk, resources, meetings that reduce teacher isolation, and decision-making power over school schedules as important physical factors to consider when looking at the effectiveness of a PLC. The same authors also pointed to similar personnel issues to consider when trying to optimize the efforts of a PLC. These human quality issues include the ability to accept constructive criticism, knowledge of the content area, knowledge of effective teaching practices, trust among staff members, and a supportive leadership.

In addition to the needed leadership at the school level, changes in a school that lead to the development of a PLC are also facilitated when the correct person is in place as superintendent of a system. According to O'Neil (1995), it is the principal's job to "create and environment where the staff can learn continuously, and the superintendent's job is to find principals and support principals who have that attitude" (p. 21). Just as it is the principal's responsibility for the supervision and guidance of the change process at the school level, it is the superintendent's responsibility to assist the principal and provide him or her with the needed resources and answers to question that arise in a timely manner. According to Lambert et al. (2002), "The district (superintendent) must assist in

facilitating the appropriate mix of freedom, dissonance, guidance, resources, opportunity, and support needed by the schools to grow" (p. 170). Superintendents must model the appropriate behaviors with his or her principals so the principals can return to their schools equipped with the right frame of mind to truly transform their schools into PLCs. As a result of the correct behaviors, the "additional dimension of a chief executive of the school district who supports and encourages continuous learning among its professionals emerges" (Hord, 1997, p. 17).

Leadership Style

When attempting the transformation into a PLC, it is important to remember that one of the key attributes of a true learning community is group involvement. Owens (2001) supported this in his statement,

> The fast paced world of school administrators seems, on the one hand, to demand that the leader make decisions quickly, without needless ado, and move on to other pressing business. This creates the temptation to make the decision unilaterally, for the sake of speed and efficiency, and be done with it. On the other hand, it is becoming increasingly clear that healthy organizations characteristically find strength in opening up participation in decision making and empowering relevant people at all levels of the organization to contribute to the quality of the decisions made. (p. 265)

In the attempt of the transformation to a PLC, transformational leadership and shared decision-making are inevitably the styles of choice by the school's leader(s). Transformational leadership was described by Lunenburg and Ornstein (2004) as "charismatic, visionary, cultural, and empowering" (p. 136). Louis and Kruse (1995) identified supportive leadership as a necessity so principals do not view themselves as the sole architects of school improvement (p. 234). Complete authority and influence is not merely an administrative component, rather it is attributed to those people in an organization that can facilitate the move towards personal, professional, and student

achievement growth. In this type of environment, decision-making is seen as the result of a group of educators working together in a leadership team capacity, collaborative teams, or reaching a consensus among the faculty. “The result of transforming leadership is a relationship of mutual stimulation and elevation that converts followers into leaders and may convert leaders into moral agents” (Owens, 2001, p. 243). Pertaining to decision-making, participative leadership is characterized as group, shared, or teacher led (Lunenburg & Ornstein, 2004). Other key words that educators might be familiar with from a participatory leadership stance are site-based management, collaboration, and focus groups. This leadership style has been associated with emphasizing the group in the decision-making process, and it has also been correlated with gains in organizational effectiveness (Lunenburg & Ornstein). Often times a key component of this type of leadership style is a healthy and highly utilized school leadership team.

Another leadership style that Lunenburg and Ornstein (2004) defined is managerial leadership. In this arena of leadership, focus is on the “behaviors, functions, and tasks” (p. 137) of the leaders and not necessarily the followers. The leader’s main job is viewed as allocating resources, delegating duties, and the management of the two. If the hopes of an organization are to grow professionally and cultivate leaders among the faculty, this is not the leadership style of choice. In fact, according to Lunenburg and Ornstein, “managers do the thing right and a leader does the right thing” (p. 137), which in this discussion would be the empowerment and involvement of others in decision-making.

One of the most important aspects of the success of a PLC is the leader of the school (DuFour & Eaker, 2002). “In traditional schools, administrators are viewed as

being in leadership positions and teachers are viewed as followers, but in a PLC, administrators are viewed as leaders of leaders" (DuFour & Eaker, p. 22). DuFour and Eaker also pointed out that it takes the continual efforts and persistence of the leaders in a school to bring about true growth as a PLC that can eventually realize an increase in student achievement. Two examples provided by DuFour and Eaker (2002) are that the leaders in a school only try to implement new initiatives that are aligned with the vision of the school and to protect, promote, and defend the schools' belief system.

The first three characteristics of a PLC echo the importance of shared decision-making. As referenced in Dufour and Eaker (1998), these three characteristics are shared values, collective inquiry, and collaborative teams. Dufour and Eaker also reference five points that support the formation of a PLC based on shared decision-making and collaborative efforts. These five points include teachers collaborating to test and expand their ideas in their area of expertise, collaborating to reach better decisions and have ownership of those decisions, collaborating to work together and decrease the fear of risk-taking, collaborating to create a large variety of options available to teach and instruct students, and collaborating to improve a school's overall culture (Dufour & Eaker). The literature on PLCs continually points toward a movement away from a bureaucratic organization to an organization with shared decision-making. Dufour and Eaker supported this in the following statement:

> Involving others in decision-making processes and empowering them to act on their ideas are two of the most significant and effective strategies used by capable leaders. Conversely, when improvement initiatives disintegrate, it is often because the leader made the mistake of trying to effect change alone without building a coalition of collaborators. (p.185)

Knowledge of effective school improvement should be based on decisions that are driven by data. “Cultivating learning communities in strategic areas is a way to manage knowledge as an asset” (Wenger, McDermott, & Snyder, 2002, p. 6). With so many things to manage, the implementation of a PLC is a practical way for administrators to share decision-making, empower others, and make good quality data-driven decisions based on a particular group’s area of expertise about a specific topic.

Summary

Looking back at the importance of the implementation of a PLC and the vital role the leader of the school and the leader of the system plays in the process brings to mind some interesting factors. “PLCs for teachers are often organized by the teachers with the facilitation of the school’s administration” (Hawley & Rollie, 2002, p. 80). This statement reinforced the information provided throughout the literature review on PLCs. Above all, it is a necessity that the leader of the school provide an atmosphere where the teachers are provided with time and feel like they can openly discuss their teaching practices with their colleagues, utilize different teaching styles to become more effective teachers as a result of these discussions, commit to collegial, professional relationships with their colleagues, and collectively build a culture that promotes student learning (Hawley & Rollie, p. 79). It is evident that no matter how much a staff wants to move in the direction of a PLC, the leader of the building must be a knowledgeable and contributing member of the PLC while creating and supporting the needed conditions of an environment to implement the PLC.

Organizations need effective leaders in order to be productive, efficient, and maintain annual yearly progress. “Leadership is a group function occurring only in the

processes of two or more people interacting as the leader(s) of the group seek to influence the behavior of other people" (Owens, 2001, p. 234). Leaders are faced with a wide array of topics, situations, decisions, and choices every day. One that is in the position of leadership must continually draw from past experiences and foundational skills when faced with these topics and the situations that present themselves where a decision must be made. In some situations, leaders must make decisions that have no precedent or similar characteristics to past experiences. When faced with such a dilemma, leaders must remain calm, not stray from their norms, and not sacrifice morals. Different leadership styles and organizational theories offer rationale that attempt to describe why leaders make the choices they make and why they (leaders) involve or do not involve the people in their organization when making these decisions. When attempting the transformation into a PLC, it is important to remember that one of the key attributes of a true learning community is group involvement.

Pyramids of Interventions

The notion of improving schools by developing a PLC is becoming more and more widespread. According to DuFour and Eaker (2005), schools must keep three big questions in mind to keep the drive of implementation of a PLC at the forefront of everyone's efforts. These three ideas are ensuring that students learn, creating a culture of collaboration, and keeping a focus on results (DuFour & Eaker). In order to keep these ideas from fading, schools must develop a pyramid of interventions with a solid foundation, continually foster collegiality among the faculty and staff, and continue to review and analyze student achievement data to keep a focus on results.

To experience an increase in student achievement, the leaders in today's schools must make a continual effort at establishing a collaborative culture in their school. "If there is anything the research community agrees on, it is that the right kind of continuous, structured teacher collaboration improves the quality of teaching and pays big dividends in student learning" (DuFour & Eaker, 2005, p. XII). "Educators can create PLCs, but it will require a staff to find common ground and exert a focused, coherent, consistent effort over time" (DuFour & Eaker, p. 11). The staff of the school must make a collaborative commitment to sustain the PLC and continue to improve the learning capacity of the students in the building.

Planning together or just meeting together does not necessarily mean that a staff is working collaboratively. DuFour and Eaker (2006) define collaboration as a "systematic process in which people work together, interdependently" (p. 214). "Members of a PLC recognize they cannot accomplish their fundamental purpose of high levels of learning for all students unless they work together collaboratively" (DuFour & Eaker, p. 89). DuFour and Eaker also asserted that within a collaborative environment, "PLCs create a systematic process of interventions to ensure students receive additional time and support. The intervention process is timely and students are directed rather than invited to utilize the intervention methods" (p. 71). Students are identified in an efficient and effective manner and placed in the appropriate interventions.

According to DuFour and Eaker (2004), schools hoping to become PLCs have to make a decision on what to do when it becomes evident that some kids are not learning essential skills. A true PLC reacts to this scenario by developing a pyramid of academic interventions. "A pyramid of interventions is a school's systemic and systematic response

to struggling students who need additional support" (Georgia Department of Education, 2006, p. 47). "The details of this school-wide system designed to provide students with extra time and support during the school day vary from level to level but address the needs of struggling students at all levels of schooling" (DuFour & Eaker, p.94). At any level of schooling, the "number of students involved at each level of the pyramid should diminish as intervention strategies approach the apex of the pyramid" (DuFour and Eaker, p. 209). "The use of an effective pyramid is school-wide, directive, and required of the staff. The strategies utilized increase in intensity over time" (Georgia Department of Education, p. 47). Student learning is monitored and adjustments are made in the placement of students on the levels of the pyramid.

According to the Georgia Department of Education (2006), "The increased accountability schools face and the move towards full implementation of standards-based instruction are forcing schools to embrace the challenge of adding rigor to their curriculum for all students" (p. 47). Once this has happened, schools then must face the inevitable scenario of what to do when students are not learning. It is important for schools to address this question because that one scenario is the foundation and determining factor of the quality of a learning community.

Developing the Pyramids

Schools that choose to respond to their academic situations regarding struggling learners by developing a pyramid of interventions are faced with a process that they must go through with their staff. According to the Georgia Department of Education (2006), there are five steps that schools can implement to develop their pyramid of interventions. These five steps are reflecting on current beliefs, identifying current practices that are

getting in the way of student progress, accounting for all the current random acts of academic interventions utilized by the school, identifying struggling students, and designing the pyramid. A brief summary of each step is described in the following review.

Before change can be executed in a school setting, the school community must decide as a cohesive group what the school wants to accomplish and how to accomplish the goal (Ashby, Maki, & Cunningham-Morris, 1996). According to Dufour and Eaker (2004), there are four possibilities that may arise when schools examine their current beliefs on student learning. These four possibilities are the theories of the "Charles Darwin School, the Pontius Pilate School, the Chicago Cub Fan School, and the Henry Higgins School" (p. 30). Each of the outcomes has a different perception on student learning and requires a different approach once the theory has been identified. This is why it is important to examine the current beliefs first so that the school knows in which direction to precede. For example, if the staff beliefs reflect the Charles Darwin School, then the teachers believe that the incoming ability levels of the students predetermine whether or not the students will be able to learn (Georgia Department of Education, 2006). If the staff feels this way, then a strategy to initiate change would be to form small learning teams with people who do believe that all students can learn and benefit from a good education. If the beliefs survey reflects the Pontius Pilate School of thought, then the teachers believe that the extent of their job is to simply provide the opportunity for a good education. If the kids take advantage of the offer, they will learn. If the kids do not take advantage of the offer, then they do not learn. The offer of the education is enough, and everything else falls on the responsibility of the parents and kids. Another possibility

is that the belief survey reflects the Chicago Cub Fan School characteristics. If this is the case, then the staff is usually excited and ready for improvements, however they rarely have the commitment level to carry out what is expected of them or agreed upon and usually end of feeling good about their efforts and saying "Wait until next year" (Georgia Department of Education, p. 48). Finally, if the beliefs survey reflects the characteristics of the Henry Higgins School of theory, then the teachers truly believe that all kids can learn and they will stop at no ends in regards to time and support of the children at the school.

Once the belief system is identified and efforts have been made to dispel any undesired beliefs, schools must move on to step two in the pyramid process. This step is to identify current practices that are getting in the way of student progress. The Georgia Department of Education (2006) suggests that this be done in a faculty meeting environment with members of the school leadership team serving as facilitators to help with groups of 5 to 7 people at each table. The goal of this step is to examine the current practices, chart the practices that may be barriers to progress, write assumptions behind the reason for using that practice, and report aloud to the entire group as each table posts its' findings.

Next, each school has building experts that are already utilizing academic interventions in their classroom. The third step allows these private practices to become public knowledge as the random acts of intervention are exposed to the entire staff. In departments, teams, or grade levels, teachers should sit down and create a list of all the current practices that are effective when implemented with struggling learners. Once each

group has created this list, the school leadership team has the task of combining the efforts of the staff and creating the school wide list of interventions.

Once a school has a prioritized list of interventions, the staff needs to identify struggling learners who will benefit from the school-created list of interventions. Obviously, the first three steps need to be in place prior to the school year starting so the struggling learners can be identified as early as possible. According to the Georgia Department of Education (2006), data used for this identification might include, "previous CRCT scores, review of previous grades and unit tests, interviews with previous teachers, interviews with previous counselors, diagnostic testing, and interviews with the students" (p. 51). Whatever data is most utilized by a school should be the key indicator of kids that are placed in to interventions.

Once the struggling learners have been identified, the pyramids need to be put to use, continually prioritized, and reviewed to ensure the design of the pyramid is effective for the school. The school leadership team will play an important role in this step as they will communicate with each of the sub-groups of staff members, continue to gather their input, and continue to report back to the school leadership team in case the pyramid needs to be revised or adjusted. Other issues the school leadership team must face with the staff include determining how the effectiveness of each intervention will be monitored, how to decide on which interventions are by invitation and which are mandatory, and how to acquire additional resources if some interventions are in need of it (Georgia Department of Education, 2006). Senge (1990) concluded that although schools go through this process, nothing in organizations will change unless there has been an environment established that welcomes and nurtures change. Yet again, the process is important, but

the correct environment must be present for the optimal impact of the process to be realized.

Student Achievement

PLCs benefit both the staff and students in schools in which they are implemented. According to Lee, Smith, and Croninger (1995), in schools that were labeled PLCs due to their practices, students were found to have been involved in more higher order thinking requirements, had greater academic gains in all four of the main academic areas than students in non-PLC schools, and had less of an achievement gap among sub-groups of students than their fellow students in non-PLC schools. Other findings of the study suggested that students stay in school longer, cut class less often, and attend more regularly in the schools identified as PLCs. According to Darling-Hammond (1995), schools that arranged themselves into PLCs that had teachers with common planning time in order to discuss student work and progress showed greater gains in student achievement than schools that did not arrange themselves in this manner. Boyer (1995) found that the significant learning takes place in PLCs because teachers teach effectively in their own room but also have the potential to learn and grow with other teachers as they participate in collective inquiry.

In an assessment of PLCs, Lynn (1995) pointed out four factors that help lead to improved student achievement:

1. Student learning,
2. Pedagogy,
3. Organizational collaboration, and
4. External support.

Through these learning communities, “teachers learn how to translate enhanced curricula and higher standards into teaching and learning for all students” (McLaughlin & Talbert, 1993, p. 5).

According to Greifner (2006), a study of 17 middle schools produced thirty specific recommendations schools could implement to increase student achievement. The 30 recommendations were grouped under nine strategies, which were further broken down into three key overlapping themes. PLCs were found to be one of these key areas that influenced student achievement. As stated by Stein (1998), principals leading PLCs must have a mission about “one thing and one thing only: student learning” (p.6). This researcher also found that in order to increase student achievement, the principals in her study focused all efforts of their organizations on the improvement of instructional practices and kept any other activity or conversation not focused on instruction to a minimum (Stein). As with Stein’s study, schools that implement PLCs do experience academic gains in student achievement because there is more done than just talking about instruction. The *doing* mode of PLCs gets initiated when staff members start collaborating on effective teacher practices and student results.

According to InPraxis Group Inc. (2006), “PLCs are an important factor improving student achievement, particularly in those schools with low-achieving students” (p. 37). InPraxis Group Inc. also pointed to the fact that research shows that the development of a true PLC in learning environments is a main component in school improvement. Still another finding of the research of the InPraxis Group Inc. was that the implementation of a PLC leads to academic improvement, including increased learning and smaller achievement gaps (p. 38).

CRCT

The CRCT is Georgia's state-wide administered standardized test to students in grades one through eight. This test is administered in the spring of each school year. Usually, the tests are administered over five consecutive days with each day being devoted to a particular content area. According to the Georgia Department of Education (2008), the purpose of the CRCT is to

> Measure how well student acquire the skills and knowledge described in the Georgia Performance Standards and the Quality Core Curriculum. The assessments yield information on academic achievement at the student, class, school, system, and state levels. This information is used to diagnose individual student strengths and weaknesses as related to the instruction of the Georgia Performance Standards and Quality Core Curriculum, and to gauge the quality of education throughout Georgia. (para 1)

The tests helps to ensure that students are learning at their grade level and provides data to teachers and schools in order to make better data-driven instructional decisions. In addition to these purposes, the CRCT also provides an accountability measure by being a part of the requirements to maintain adequate yearly progress. The CRCT is administered in grades one through eight in the state of Georgia. All grade levels take the CRCT in the areas of Reading, Language Arts, and Math. However, grades three through eight also take the CRCT in the areas of Science and Social Studies.

The CRCT is a criterion-referenced test. This differs from a norm-referenced test in that students are tested against the attainment of objectives and not ranked among other students and their test scores along a continuum. The Georgia version of the CRCT is intended to test the attainment of the Georgia Performance Standards (Georgia Department of Education, 2008). The attainment of the performance standards is divided into three areas when students receive their scores back from the state. A score below 800

is documented as *Does Not Meet Standards*. A score ranging from 800 – 849 is documented as *Meets Standards*. A score above 850 is documented as *Exceed Standards*. For this study, the students that were in seventh grade scored in the Does Not Meet category when they were administered the test in the spring of their seventh grade school year.

Review of Related Studies

The researcher will present reviews of six related research studies. The study critique will include methodology, design, sample size, and results. At the conclusion of the reviews, the researcher will identify the relationship between this study and related studies.

In a study conducted in 2007, Mitchell examined the impact of two PLC classroom practices that impact at-risks students' achievement in the area of English / Language Arts. Five elementary schools participated in the study, which included a total of 100 adult participants. Mitchell found that in the higher performing schools, monitoring of student learning was much more prevalent in the classes and reported more frequently by the teachers when interviewed. Mitchell found that among the two practices investigated (data analysis and continuous improvement), the need for a more constant plan, do, check, act cycle was needed. The schools may have the data, but the districts and schools must include regular formative and summative testing to ensure mastery of the standards.

In a qualitative study conducted in 2007, Spiegel-Stroud attempted to identify characteristics of PLCs in two elementary schools in Maryland that the school used in an effort to improve student learning. The purpose of the study was to provide a framework

of reference point for other researchers or schools that were in the initial stages of becoming a PLC. Among other findings, Spiegel-Stroud found that schools needed to implement:

1. Weekly, common planning time,

2. Teacher guidelines and autonomy in meeting the needs of students,

3. High levels of collegiality, and

4. Efficient and effective housekeeping activities such as scheduling or communication.

Spiegel-Stroud warned readers that the study should be replicated with a larger sample over a longer period of time to increase the validity. The researcher's sample size was two schools.

In this qualitative case study, Perez (2007) focused on the role of the principal in a PLC and what his or her actions must be to support the implementation of the characteristics of a PLC. More specifically, the researcher focused on the leader's actions in creating, supporting, and sustaining the characteristics of a PLC. The researcher used three schools for the sample size. Among the findings of the study, Perez concluded that effective principals of PLCs facilitate positive growth and development of the organization. An attempt is made to correlate the leaders' actions and style with the effective implementation of the characteristics of a true learning community.

In a study conducted by Tegaris (2007), the efficacy of a PLC was investigated with teams of fifth and sixth grade teachers. The researcher used the theoretical framework of McLaughlin, Talbert, DuFour, and Eaker. The researcher examined the collaborative culture and attitudes of teachers before and after they implemented PLC

strategies in their classrooms to address a wide variety of student issues. The findings of the study included that:

1. Teachers working in a PLC could better identify, clarify, and address student needs in order to ensure student learning,
2. Collaboration among teachers deterred the tendency for special education referral, and
3. Utilization of the aspects of a PLC enabled teachers to address the needs of students without having to refer students for consideration for special education.

In a study conducted in 2007 by Ogrodiuk-Whaley, leadership practices necessary to assist the staffs of two schools to work in high functioning PLCs were examined. This mixed methods study used surveys, face-to-face interviews, and a focus group. The researcher planned to use the findings of the study to make recommendations to both schools in order to strengthen their learning communities.

A 2007 study conducted by Croasmun focused on the impact of a PLC on student achievement gains. This case study approach examined the gains made by one elementary school in North Carolina over a five-year period. Over this time span, the school raised its level of student achievement nearly 30% and credited the huge gains to the implementation of a PLC. The purpose of Croasmun's study was to first verify the actual existence of a PLC at the elementary school and then to examine the impact of the PLC on the increase of the student achievement. Results of the study included the verification of the existence of a PLC at the elementary school and that the PLC did have a positive impact on the school's status in regards to student achievement. The researcher

also pointed out that not one particular aspect of the PLC could be attributed to the academic gains; rather it was a combination of all the components of the PLC.

This study is most closely related to the last related study discussed, Croasmun (2007). This study focused on the implementation of a PLC at a middle school and the impact on student achievement the components of the learning community such as a pyramid of interventions have on student learning. Portions of each related study have either been discussed previously in this study's literature review or are addressed in this actual study. One difference is that this study will utilize a quantitative whereas some of the studies discussed were qualitative or mixed method studies.

Summary

This chapter reviewed the current literature on PLCs (PLC). The researcher discussed the literature in seven sections. The researcher provided an overview of the literature on the background of PLCs, the characteristics of PLCs, the importance of leadership in a PLC, the development of a pyramid of interventions within a PLC, the impact of a PLC on student achievement, an overview of the CRCT (CRCT), and a review of related studies to the researcher's topic. Chapter 3 discusses the methodology utilized by the researcher. Chapters 4 and 5 conclude with discussion of the results, conclusion, data interpretation, and recommendations of the researcher.

CHAPTER 3: METHODOLOGY

Introduction

Chapter 3 explains the researcher's justification for using a quantitative approach for the study and identifies the research components. This section also includes descriptions of the design and approach, the study population and sample, data collection procedures, data analysis, and a summary of the protection and confidentiality of the participants' information. The purpose of this study was to test the hypotheses that determine the impact of the implementation of a PLC and an academic pyramid of interventions on student achievement as measured by Georgia's state standardized test.

Research Question and Hypothesis

1. What is the impact of the implementation of a PLC and an academic pyramid of interventions on eighth grade students' CRCT test scores?

H_o1: There is no significant impact on CRCT test scores of eighth grade students with the implementation of a PLC and an academic pyramid of interventions.

H_a1: There is a significant impact on CRCT test scores of eighth grade students with the implementation of a PLC and an academic pyramid of interventions.

Purpose

The purpose of this pre-experimental study was to test the hypotheses that determine the impact of the implementation of a PLC on student achievement. The independent variable is generally described as the exposure to the academic strategies from the pyramid of interventions. The dependent variable is generally described as student achievement on the CRCT in the areas of math and reading. The researcher used 2 years of CRCT data from a group of about 100 students to determine if the academic

strategies that were implemented had an impact on the students' academic performance on the CRCT in the areas of math and reading.

Design

Of the four types of experimental designs, this study was characterized by the qualities of a pre-experimental study. “With pre-experimental designs, the researcher studies a single group and provides an intervention during the experiment” (Creswell, 2003, p. 167). According to Dooley (2001), “The use of an intervention as the independent variable constitutes the use of one of the experimental designs” (p. 164). The label and design of this study was a quantitative one-group pretest - posttest. “This design includes a pre-test measure followed by a treatment and a post-test measure for a single group” (Creswell, p. 168). In a one-group pre-experimental design, the researcher provides an intervention during the experiment. Dooley stated, “One sort of pre-experimental design is the single-group, pretest – posttest design. In this design, the researcher measures one group twice, before and after an intervention” (p. 164). Also, according to Dooley, in this type of experiment, any effect “appears within the subjects or group as a change between the pre-measures and post-measures” (p. 164). According to Trochim (2006), “Experimental designs are often touted as the most rigorous of all research designs or, as the gold standard against which all other designs are judged” (p.75). Trochim further explained, that these designs explain an if-then relationship. That is to say, “if the program is given, then the outcome will occur” (p.75). The rationale for the selection of this design is that the researcher’s study involved one group of students that took the CRCT in April 2007 as seventh grade students (pretest), were exposed to academic strategies based upon the implementation of the system-wide pyramid of

interventions (treatment), and then took the CRCT in April 2008 as eighth grade students (posttest). Also, the use of the other three types of experimental designs was eliminated due to the fact that quasi-experiments use control and experiment groups, true experiments randomly assign participants to treatment groups, and single-subject designs include the observation of either one person or a small group of people over a given time period (Creswell, 2003).

Setting and Sample

Below the researcher describes the setting in which the study was conducted, the population from which the study sample was drawn, and the actual sampling procedures and specifics.

Population

Brantley County Middle School consists of only two grade levels. For this reason, students in grades seven and eight at Brantley County Middle School were of interest to the researcher. The participants in the study were located at the only middle school in Brantley County in southeast Georgia. The total population at Brantley County Middle School is 550 students. The total number of seventh grade students at the researcher's school was 280. The total number of eighth grade students at the researcher's school was 270.

Sampling

Sampling was conducted through stratification. Five teams of teachers identified approximately 20 students from each of the academic teaching teams that are at risk for not meeting standards according to the Georgia CRCT. This process produced 100 students that participated in the study. The 100 students were selected for the study by the

five teams of teachers determining the students to be at risk in terms of their potential for success on the CRCT. The sampling procedures were conducted by stratification due to the students' past performances on the CRCT and their current level of academic success. The sample size consisted of 100 total students.

Instrumentation and Materials

The researcher collected data for this study with the use of test scores from the yearly state-administered CRCT. The Georgia Department of Education establishes reliability and validity for the CRCT. Validity was assured through the testing and evaluating of students' knowledge of the Georgia state curriculum. According to Creswell (2003), there are three types of validity to check for regarding a researcher's instrumentation. These three areas are content validity, predictive validity, and construct validity. The yearly-administered CRCT is valid in all three of these areas. First, with regards to content validity, the CRCT measures what it is intended to measure because the test is written by the Georgia Department of Education to measure the knowledge of the state's curriculum standards. The predictive validity component is addressed by the scores of the test being utilized by high schools to predict or correlate the future success of students in high school on other state tests. Construct validity refers to the measurement of hypothetical concepts, constructs, and whether or not the scores of the instrument serve a useful purpose when used. CRCT test scores from the Georgia Department of Education are a useful piece of data schools have at their disposal and have positive consequences for schools when analyzed. Consistency and reliability is assured with the testing because the Georgia Department of Education provides testing protocol and procedures to follow during testing to ensure the testing sessions all over the

state are standardized. Reliability is assured through the use of pilot tests, questions, and accurate scoring for each administration that divides the test scores into three categories of does not meet, meets, and exceeds standards.

Data Collection Procedures

The researcher received approval from the Superintendent of the school system to conduct this research study at the middle school (see Appendix A) and to use de-identified student data (see Appendix B). Data collection consisted of three phases. First, the school system received scores from the Georgia Department of Education, and the researcher gained permission from the Superintendent of schools to utilize the data for the study. Secondly, teachers identified 100 at-risk students as determined by their potential for meeting standards on the Georgia CRCT. Lastly, the test scores of the students selected were extracted from the data pool to use for analysis. The raw data of the student test scores are available in the appendix section as Appendix C. According to Trochim (2006), this type of data collection process is known as the sampling model. “In this type of data collection, you start by identifying the population you would like to generalize to. Then, you draw a fair sample from that population and conduct your research with the sample” (Trochim, p.76). There are no issues with test scores not being reported for any of the students because the school takes measures to make sure that 100% of the student population is tested each year. These measures include the use of incentives for attendance during testing, daily make-up testing of entire sections or portions of testing that may have been missed, allowing students that are suspended to come to school for the testing session and then return home, and transporting kids to school in extreme circumstances when no transportation is available.

Data Analysis Plan

The researcher used SPSS to run a repeated-measures *t* test for the study. “A repeated- measures study is one in which a single sample of individuals is measured more than once on the same dependent variable. The same subjects are used in all of the treatment conditions” (Gravetter & Wallnau, 2005, p. 275). The mean score and standard deviation of the group of students on both the pre and post-test were compared, analyzed, and reported when significantly different. The researcher determined if the data is significantly different through examination of the *t* statistic and the significance level. When analyzed, the analysis was reported in a concise statement that “incorporates the t-value, degrees of freedom and alpha level” (Gravetter & Wallnau, p. 282). Often referred to as a within-subject study, this method of analysis has some advantages. “The main advantage of a repeated-measures or within-subject study is that it uses exactly the same subjects in all treatment conditions” (Gravetter & Wallnau, p. 276). This ensures that there are no differences in treatment of subject or participants by reducing individual differences and lowering sample variability. Since the researcher tracked the same group of students over a two-year period and measured their achievement on the same state mandated test, this data analysis test seemed to be most appropriate.

Role of the Researcher

The role of the researcher in this study was to monitor the implementation of a PLC and an academic pyramid of interventions, monitor the use of interventions, collect data from the 2007 and 2008 CRCT, and then analyze that data. Other responsibilities of the researcher included gaining permission to conduct the study, collection of data, analysis of the data, interpretation of the data, and reporting of the data.

Protection of Participants' Rights and Confidentiality

Multiple measures were taken to protect information about any of the participants in the study. First, the researcher obtained the permission of the Superintendent of schools to conduct the study. Second, all the names of the participants were kept confidential. Third, the sample of students was assigned numerical codes so that the individual participants cannot be identified. Confidentiality about the participants and information surrounding the study are very important to the researcher.

Summary

This chapter explained the researcher's justification for using a quantitative approach for the study and identifies the research components. This section also included descriptions of the design and approach, the study population and sample, data collection procedures, data analysis, and a summary of the protection and confidentiality of the participants' information. Chapters 4 and 5 conclude with discussion of the results, conclusion, data interpretation, and recommendations of the researcher.

CHAPTER 4: RESULTS

Introduction

As stated in chapter 1, the objective of this study was to determine the impact of the implementation of a PLC and an academic pyramid of interventions on student achievement of middle school students. This chapter reveals the findings related to the research question.

Chapter 4 is divided into four sections. Section 1 provides a summary of the background information for this study. Sections 2 and 3 illustrate the findings of the research question. Section 4 provides a summary of the chapter and previews chapter 5.

Background Information

The background section contains information on the study method and design; setting, participants, and sample; and data collection.

Method and Design

Of the four types of experimental designs, this study is characterized by the qualities of a pre-experimental study. “With pre-experimental designs, the researcher studies a single group and provides an intervention during the experiment” (Creswell, 2003, p. 167). According to Dooley (2001), “The use of an intervention as the independent variable constitutes the use of one of the experimental designs” (p. 164). The label and design of this study was a quantitative one-group pretest - posttest. In a pre-experimental design, a measure taken from a pre-test is followed by a treatment and then compared to a measure taken from a post-test. In a one-group pre-experimental design, the researcher provides an intervention during the experiment. Dooley stated, “One sort of pre-experimental design is the single-group, pretest – posttest design. In this design,

the researcher measures one group twice, before and after an intervention" (p. 164). In this type of design, a change in the group is noticed in the comparison of the pre test and post-test measures. According to Trochim (2006), "Experimental designs are often touted as the most rigorous of all research designs or, as the gold standard against which all other designs are judged" (p.76). This design helps to explain an if-then relationship. That is to say, "if the program is given, then the outcome will occur" (p.75). The rationale for the selection of this design is that the researcher's study involved one group of students that took the CRCT in April 2007 as seventh grade students (pretest), were exposed to academic strategies based upon the implementation of the system-wide pyramid of interventions (treatment), and then took the CRCT in April 2008 as eighth grade students (posttest). Also, the use of the other three types of experimental designs was eliminated due to the fact that quasi-experiments use control and experiment groups, true experiments randomly assign participants to treatment groups, and single-subject designs include the observation of either one person or a small group of people over a given time period (Creswell, 2003).

Setting, Participants, and Sample

Brantley County Middle School consisted of only two grade levels. For this reason, students in grades seven and eight at Brantley County Middle School were of interest to the researcher. The participants in the study were located at the only middle school in Brantley County in southeast Georgia. The total population at Brantley County Middle School was 550 students. The total number of seventh grade students at the researcher's school was 280. The total number of eighth grade students at the researcher's school is 270.

Sampling was conducted through stratification. Five teams of teachers identified 20 students from each of the academic teaching teams that are at risk for not meeting standards according to the Georgia CRCT. This process produced one hundred students that participated in the study. The 100 students were selected for the study by the five teams of teachers that determined the students to be at risk in terms of their potential for success on the CRCT. The sampling procedures were conducted by stratification due to the students' past performances on the CRCT and their current level of academic success. The sample size consisted of 100 total students.

Data Collection

The researcher collected data for this study with the use of test scores from the yearly state-administered CRCT. The Georgia Department of Education establishes reliability and validity for the CRCT. Validity is assured through the testing and evaluating of students' knowledge of the Georgia state curriculum. According to Creswell (2003), there are three types of validity to check for regarding a researcher's instrumentation. These three areas are content validity, predictive validity, and construct validity. The yearly-administered CRCT is valid in all three of these areas. First, with regards to content validity, the CRCT measures what it is intended to measure because the test is written by the Georgia Department of Education to measure the knowledge of the state's curriculum standards. The predictive validity component is addressed by the scores of the test being utilized by high schools to predict or correlate the future success of students in high school on other state tests. Construct validity refers to the measurement of hypothetical concepts, constructs, and whether or not the scores of the instrument serve a useful purpose when used. CRCT test scores from the Georgia

Department of Education are perhaps the most useful piece of data schools have at their disposal and definitely have positive consequences for schools when analyzed. Consistency and reliability is assured with the testing because the Georgia Department of Education provides testing protocol and procedures to follow during testing to ensure the testing sessions all over the state are standardized. Reliability is assured through the use of pilot tests, questions, and accurate scoring for each administration that divides the test scores into three categories of does not meet, meets, and exceeds standards.

Data collection consisted of three phases. First, the school system received scores from the Georgia Department of Education, and the researcher gained permission from the Superintendent of schools to utilize the data for the study. Secondly, teachers identified 100 at-risk students as determined by their potential for meeting standards on the Georgia CRCT. Lastly, the test scores of the students selected were extracted from the data pool to use for analysis. The raw data of the student test scores is available in the appendix section as Appendix C. According to Trochim (2006), this type of data collection process is known as the sampling model. “In this type of data collection, you start by identifying the population you would like to generalize to. Then, you draw a fair sample from that population and conduct your research with the sample” (Trochim, para 3). There will be no issues with test scores not being reported for any of the students because the school takes measures to make sure that 100% of the student population is tested each year. These measures include the use of incentives for attendance during testing, daily make-up testing of entire sections or portions of testing that may have been missed, allowing students that are suspended to come to school for the testing session and

then return home, and transporting kids to school in extreme circumstances when no transportation is available.

The researcher used SPSS to run a repeated-measures *t* test for the study. “A repeated- measures study is one in which a single sample of individuals is measured more than once on the same dependent variable. The same subjects are used in all of the treatment conditions” (Gravetter & Wallnau, 2005, p. 275). The mean score and standard deviation of the group of students on both the pre and post-test were compared, analyzed, and reported when significantly different. The researcher determined if the data is significantly different through examination of the *t* statistic and the significance level. When analyzed, the analysis was reported in a concise statement that “incorporates the t-value, degrees of freedom and alpha level” (Gravetter & Wallnau, p. 282). Often referred to as a within-subject study, this method of analysis has some advantages. “The main advantage of a repeated-measures or within-subject study is that it uses exactly the same subjects in all treatment conditions” (Gravetter & Wallnau, p. 276). This ensures that there are no differences in treatment of subject or participants by reducing individual differences and lowering sample variability. Since the researcher tracked the scores from the same group of students over a 2-year period and measured their achievement on the same state mandated test, this data analysis test seemed to be most appropriate.

Research Question 1 Results

Research Questions 1: What is the impact of the implementation of a PLC and an academic pyramid of interventions on eighth grade students’ CRCT test scores?

The independent variable was the implementation of a PLC and an academic pyramid of interventions, and the dependent variable was the math and reading scores of the students on the CRCT (CRCT).

Impact of Learning on CRCT Scores-Reading

Results of the repeated measures *t* test showed that the implementation of a PLC resulted in a significant improvement in reading scores in eighth grade (M = 814.16, SD = 13.26) relative to their reading scores in seventh grade (M = 807.52, SD = 18.14) on the CRCT (t [99] = 4.16, p < .001, 95% CI 3.47 – 9.81). Based on the data presented above, the researcher rejected the null hypothesis with regards to reading scores.

Impact of learning on CRCT Scores-Math

Results of the repeated measures *t* test showed that the implementation of a professional learning community did not significantly improve Math scores in eighth grade (M = 796.07, SD = 25.70) relative to their Math scores in seventh grade (M = 792.67, SD = 19.11) on the CRCT (t [99] = 1.20, p = .15, 95% CI -1.20 – 8.00).

Table 1 Repeated Measures T Test for Reading and Math Scores

	M	SD	t	Df	P
Reading Grade 7 (n = 100)	807.52	18.14	4.16	99	< .001
Reading Grade 8 (n = 100)	814.16	13.26			
	M	SD	t	Df	P
Math Grade 7 (n = 100)	792.67	19.11	1.20	99	.15
Math Grade 8 (n = 100)	796.07	25.70			

Relationship between Reading and Math Scores

A bivariate correlation was conducted to determine whether reading and math scores were related. Table 2 shows that all relationships were significant.

Table 2 Intercorrelations Between Reading and Math Scores

	Reading Grade 7	Math Grade 7	Reading Grade 8	Math Grade 7
Reading Grade 7	--			
Math Grade 7	.58*	--		
Reading Grade 8	.52*	.47*	--	
Math Grade 8	.29^{+}	.50*	.48*	--

Note: * = $p < .001$; + = $p < .01$

Summary

Chapter 4 provided a summary of the background information for this study, illustrated the findings of the research question, and provided a summary of the chapter. Chapter 5 will include an overall summary of the study, conclusions, and recommendation for areas of further study.

CHAPTER 5: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Introduction

Chapter 5 contains the summary, conclusion, and recommendations of this research study. The chapter begins with a brief overview of the study and results followed by an interpretation of the findings, implications for social change, recommendations for action, recommendations for further study, researcher's reflections, and a final summary. The overview will discuss the pressing issue the researcher faced in the study, and relate current literature to the same situation faced by other educational institutions.

The issue that was addressed at the researcher's school related to a gap between the school's total student body standardized test scores and certain student subgroups and students that are identified as struggling learners. Closing the achievement gap is not just an issue at the researcher's middle school. Rather, schools across the nation are battling this issue and trying to implement strategies to help close the achievement gap. According to Spielhagen (2006), one school tried to solve the achievement gap issue by offering algebra to all eighth grade students to increase the math readiness level of students as they entered high school. Azzam (2007) reported that although the achievement gap has narrowed somewhat since the enactment of NCLB, the achievement gap in groups of students remains and needs addressing. Finally, Spielhagen (2007) reported that some schools that are offering algebra to only a select group of students need to examine their procedures because they may be contributing to the achievement gap that extends into high school and possibly even entrance into colleges. This is an issue that was addressed because test scores of all seventh and eighth grade students have

an impact on the AYP status of the researcher's school. More specifically, the researcher's school's AYP status is impacted by both the total student body performance on the standardized test and the performance of the different sub-groups of students within the school. Over the past several years, students who are members of subgroups such as students with disabilities (SWD), economically disadvantaged students, or students identified by teachers as struggling learners have not kept pace in regards to test scores with the total student body. Currently, there are several procedures and strategies that educators try to employ to help struggling learners and at-risk students. However, there still seems to be a large number of students not achieving what is expected of them on state mandated tests, especially students with disabilities in mathematics. What is not known is the root cause of the deficiency of the students scoring poorly on the standardized test and if the implementation of a PLC along with an academic pyramid of interventions will have a positive impact on student's test scores and the school's AYP status. This problem impacts schools on a local level, system level, and eventually a state level when adequate yearly progress reports are published each summer after spring testing.

The purpose of this pre-experimental study was to test the hypotheses that determine the impact of the implementation of a PLC on student achievement as measured by Georgia's state standardized test. The independent variable is generally described as the exposure to the academic strategies from the pyramid of interventions. The dependent variable is generally described as student achievement on the CRCT in the areas of math and reading. The researcher used two years of CRCT data from a group of 100 students to determine if the academic strategies that were implemented have an

impact on the students' academic performance on the CRCT in the areas of math and reading.

Research Question and Hypothesis

1. What is the impact of the implementation of a PLC and an academic pyramid of interventions on eighth grade students' CRCT test scores?

H_o1: There is no impact on CRCT test scores of eighth grade students with the implementation of a PLC and an academic pyramid of interventions.

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the students' past performances on the CRCT and their current level of academic success. The sample size consisted of 100 total students.

Methodology and Data Collection Procedures

Of the four types of experimental designs, this study is characterized by the qualities of a pre-experimental design. "With pre-experimental designs, the researcher studies a single group and provides an intervention during the experiment" (Creswell, 2003, p. 167). The label and design of this study was a quantitative one-group pretest - posttest. In a one-group pre-experimental design, the researcher provides an intervention during the experiment. Dooley (2001) stated, "One sort of pre-experimental design is the single-group, pretest – posttest design. In this design, the researcher measures one group twice, before and after an intervention" (p. 164). The rationale for the selection of this design is that the researcher's study involved one group of students that took the CRCT in April 2007 as seventh grade students (pretest), were exposed to academic strategies based upon the implementation of the system-wide pyramid of interventions (treatment), and then took the CRCT in April 2008 as eighth grade students (posttest). Also, the use of the other three types of experimental designs was eliminated due to the fact that quasi-experiments use control and experiment groups, true experiments randomly assign participants to treatment groups, and single-subject designs include the observation of either one person or a small group of people over a given time period (Creswell).

Data collection consisted of three phases. First, the school system received scores from the Georgia Department of Education, and the researcher gained permission from the superintendent of schools to utilize the data for the study. Secondly, teachers identified 100 at-risk students as determined by their potential for meeting standards on

the Georgia CRCT. Lastly, the test scores of the students selected were extracted from the data pool to use for analysis. The raw data of the student test scores are available in the appendix section as Appendix C. According to Trochim (2006), this type of data collection process is known as the sampling model. “In this type of data collection, you start by identifying the population you would like to generalize to. Then, you draw a fair sample from that population and conduct your research with the sample” (Trochim, para 3). There were no issues with test scores not being reported for any of the students because the school takes measures to make sure that 100% of the student population is tested each year. These measures include the use of incentives for attendance during testing, daily make-up testing of entire sections or portions of testing that may have been missed, allowing students that are suspended to come to school for the testing session and then return home, and transporting kids to school in extreme circumstances when no transportation is available.

Data Analysis

The researcher used SPSS to run a repeated-measures *t* test for the study. “A repeated- measures study is one in which a single sample of individuals is measured more than once on the same dependent variable. The same subjects are used in all of the treatment conditions” (Gravetter & Wallnau, 2005, p. 275). The mean score and standard deviation of the group of students on both the pre and post-test were compared, analyzed, and reported when significantly different. The researcher determined if the data is significantly different through examination of the *t* statistic and the significance level. An advantage of this type of study is that the same subjects are used which ensures there are no differences in treatment conditions. Since the researcher tracked the same group of

students over a two-year period and measured their achievement on the same state mandated test, this data analysis test seemed to be most appropriate.

Summary of Results

Quantitative data for this study included the CRCT test scores in the areas of math and reading from both the spring of 2007 and the spring of 2008. Results of the repeated measures *t* test showed that the implementation of a PLC resulted in a significant improvement in Reading scores in eighth grade (M = 814.16, SD = 13.26) relative to their Reading scores in seventh grade (M = 807.52, SD = 18.14) on the CRCT (t [99] = 4.16, p < .001, 95% CI 3.47 – 9.81). Results of the repeated measures *t* test showed that the implementation of a PLC did not significantly improve Math scores in eighth grade (M = 796.07, SD = 25.70) relative to their Math scores in seventh grade (M = 792.67, SD = 19.11) on the CRCT (t [99] = 1.20, p = .15, 95% CI -1.20 – 8.00). Results of a comparison of the 2008 academic achievements of the researcher's school compared to both the 2007 year's achievement and the 2008 annual measurable objectives show that the implementation of a PLC and an academic pyramid of interventions had a positive impact on the AYP status of Brantley County Middle School.

Interpretation of Findings

Research Question 1

What is the impact of the implementation of a PLC and an academic pyramid of interventions on eighth grade students' CRCT test scores?

To answer the first research question, the pretest and posttest data was analyzed using a repeated-measures *t* test. With regards to CRCT Reading scores, results of the repeated measures *t* test showed that the implementation of a PLC resulted in a

significant improvement in Reading scores in eighth grade (M = 814.16, SD = 13.26) relative to their Reading scores in seventh grade (M = 807.52, SD = 18.14) on the CRCT (t [99] = 4.16, p < .001, 95% CI 3.47 – 9.81). With regards to CRCT Math scores, results of the repeated measures *t* test showed that the implementation of a PLC did not significantly improve Math scores in eighth grade (M = 796.07, SD = 25.70) relative to their Math scores in seventh grade (M = 792.67, SD = 19.11) on the CRCT (t [99] = 1.20, p = .15, 95% CI -1.20 – 8.00).

In the area of Reading, the results did show that the scores experienced a significant improvement after the implementation of a PLC and an academic pyramid of interventions. As seventh graders, the average student score was only 807.52 with a standard deviation of 18.14. However, as eighth graders, the average student score was 814.16 with a standard deviation of 13.26. The student test scores improved by almost seven and a half points.

In the area of Math, the results did not show that the scores experienced a significant improvement after the implementation of a PLC and an academic pyramid of interventions. As seventh graders, the average student score was 792.67 with a standard deviation of 19.11. As eighth graders, the average student score only improved to 796.07 with a standard deviation of 25.70.

One possible issue that may have influenced the test scores in the area of math was the roll out of the new Georgia Performance Standards in the area of mathematics. These new standards are only 2 years old, and the standards have been a part of a phase-in approach over the past several years. These standards are more rigorous, and schools across the state of Georgia have been experiencing a dip in student test scores over the

past several years as grade after grade of the standards are rolled out for students. Last year, the state of Georgia saw its annual meets and exceeds percentage for the area of mathematics drop to approximately 65%.

Implications for Social Change

This study has the potential to become the catalyst for positive social change in many ways. Upon reviewing the study, the researcher can point to three main areas in which society may be impacted. These three areas include preparing students better for their high school career, producing a better group of students to be the future citizenry for the county and surrounding area, and equipping the adults at the researcher's middle school with the necessary skills to function effectively in a PLC.

In a PLC, students that need extra help are identified in a timely manner so that they receive the needed interventions for them to be successful. The result of this process is a better prepared group of students. At the researcher's middle school, the students that are exposed to the interventions and experience the benefits of the PLC are better prepared when they transition to high school. By implementing the PLC and an academic pyramid of interventions, the researcher's school will help ensure a successful high school career of more students.

As a result of this study, the researcher's school should be able to produce a better class of students to the high school who should in turn be able to produce a better graduating class of citizens for the community and surrounding area. This study has the potential to create a positive social change through the addressing of academic needs at an earlier stage in the student's academic career. Also, by identifying the students in need of help, addressing their needs, and closing the achievement gap, this study has the

potential to create positive social change by producing a better prepared entire student body to become working citizens of society leaving no child behind regardless of race, background, or economic status.

As a result of implementing and sustaining a PLC, the adults at the researcher's school will be equipped with the skills needed to continue to function effectively in a PLC. The adults will acquire the needed skills to plan as collaborative teams, monitor progress, continually improve, and implement interventions in a timely manner. By equipping themselves with these qualities, the teachers and staff at the researcher's school can have a positive impact on society by better preparing class after class of students that come through the researcher's school.

Recommendations for Action

The conclusions of this research study are significant to the researcher's middle school, the researcher's school system, and schools similar in make-up to the researcher's middle school. Based upon the results and findings of the study, several action steps should be taken to sustain the implementation of a PLC, possibly improve and expand it in some areas, and disseminate the study results.

The first action step is to sustain the PLC and academic pyramid of interventions at the researcher's middle school while at the same time beginning implementation at other schools in the researcher's school system. It would be beneficial to the students, staff, and stakeholders in the researcher's school district if the implementation effort were continued. As implementation continued, the results of similar studies should improve because students in the system would benefit from the academic pyramid of interventions

at an earlier grade and come to the researcher's middle school at a higher academic entrance level.

A second action step builds upon the first by expanding the pyramid on interventions concept to other areas. The researcher would like to set up pyramids of interventions in the areas of attendance of students and discipline procedures of students. Attendance of students had a direct impact on the researcher's middle school, and the status of the discipline at a school has a high impact on student achievement at a school.

A third action step is to improve the math interventions offered to students from the pyramid of interventions. Entering the third year of the new math Georgia Performance Standards, the researcher's middle school staff could now better prepare kids for the CRCT and use different strategies than in the past.

A fourth action step is to disseminate the study results. Dissemination of the study results could occur in many ways. On the local level, the study results could be discussed and reviewed at monthly Board of Education work sessions or meetings. On the regional level, the results could be reported through the researcher's local RESA (regional educational support agency). On the state and national level, the results of the study could be reported at conferences.

Recommendations for Further Study

Recommendations for further study by the researcher would include three main areas. First, due to the timeline of the roll out of the new Georgia Performance Standards for middle school math, the researcher would recommend replicating the study in the area of math with a different group of students using their test scores from the CRCT during their seventh and eighth grade years of schooling. Second, the researcher would

recommend replicating the entire study in the future with a new set of students using their test scores from the CRCT to compare the results between the two studies for similarities in results and/or findings. Third, the researcher would recommend tracking the performance on high stakes testing of the initial studies' students in grades 9-12. The researcher would also suggest on the last recommendation that the test scores be cross-referenced and/or correlated to the participation of students in extra instructional interventions during their time in grades 9-12.

Researcher's Reflection

Since being exposed to the idea of a PLC and pyramids of interventions, the researcher has been interested in the implementations and possible impact of these two ideas. Being led into the idea by my district's assistant superintendent of instruction, the researcher was excited to seek out further information on the implementation of these two concepts and eventually conduct this study to determine the impact of the implementation of a PLC and an academic pyramid of interventions. The researcher's enthusiasm about the two concepts should not have caused any personal bias other than ensuring the monitoring of interventions to make certain the interventions were taking place. This is a normal part of the researcher's job duties, so the personal bias factor should be minimal if at all.

Summary

The goal of this research study was to determine if the implementation of a PLC and an academic pyramid of interventions had an impact on the student achievement of middle school students. Results indicated that the implementation of the PLC and academic pyramid of interventions had a significant impact on student test scores in the

area of reading but not in the area of math. Also, results indicated that the implementation of the PLC and academic pyramid of interventions had a positive impact on the AYP status of the researcher's middle school. The results of this study point future researchers in the direction of PLCs in order to help increase student achievement and raise student test scores.

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APPENDIX A: SUPERINTENDENT LETTER

Brantley County School System
Dr. Drew Sauls
Rt. 2, Box 22-T
Nahunta, GA 31553
(912) 462-6176

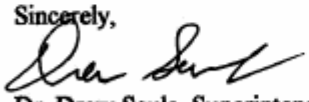
July 25, 2008

Dear Mr. Brandon Carter,

Based on my review of your research proposal, I give permission for you to conduct the study entitled "The Impact of a Professional Learning Community on Student Achievement" within the Brantley County School System organization. As part of this study, I will provide you with the Limited Data Set as agreed upon in the Data Use Agreement. We reserve the right to withdraw from the study at any time if our circumstances change.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,



Dr. Drew Sauls, Superintendent
Brantley County School System
Rt. 2, Box 22-T
Nahunta, GA 31553
(912) 462-6176

APPENDIX B: DATA USE AGREEMENT

DATA USE AGREEMENT

This Data Use Agreement ("Agreement"), effective as of July 25, 2008 ("Effective Date"), is entered into by and between Brandon Carter ("Data Recipient") and Brantley County Schools ("Data Provider"). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set ("LDS") for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the "HIPAA Regulations" codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.

2. Preparation of the LDS. Data Provider shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA or FERPA Regulations

3. Data Fields in the LDS. No direct identifiers such as names may be included in the Limited Data Set (LDS). In preparing the LDS, Data Provider shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research: Students' standardized test scores for the sections of Reading and Math on the Georgia Criterion Referenced Competency Test for the 2006-2007 and 2007-2008 test administrations.

4. Responsibilities of Data Recipient. Data Recipient agrees to:

   a. Use or disclose the LDS only as permitted by this Agreement or as required by law;

   b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

   c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

   d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and

   e. Not use the information in the LDS to identify or contact the individuals who are data subjects.

5. Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS for its research activities only.

6. Term and Termination.

   a. Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.

   b. Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.

   c. Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.

   d. For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.

   e. Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

7. Miscellaneous.

   a. Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.

   b. Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.

   c. No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.

   d. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

e. Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER

Signed: Drew Sauls

Print Name: Drew Sauls

Print Title: Superintendent

DATA RECIPIENT

Signed: Brandon Carter

Print Name: Brandon Carter

Print Title: Asst. Principal

APPENDIX C: RAW DATA

Student #	Reading 2007	Reading 2008	Math 2007	Math 2008
1	822	825	808	772
2	780	790	725	730
3	816	795	826	795
4	825	823	798	792
5	828	832	806	792
6	802	823	776	760
7	802	812	798	800
8	804	812	802	789
9	800	790	771	742
10	814	815	785	784
11	802	810	785	800
12	804	815	769	800
13	790	802	808	814
14	806	828	796	789
15	792	800	774	775
16	816	820	794	817
17	802	817	792	795
18	809	820	792	775
19	811	835	792	795
20	800	805	776	795
21	792	817	802	817
22	819	817	787	805
23	794	800	792	810
24	839	843	808	820
25	785	783	781	785
26	822	839	832	854
27	811	828	790	808
28	800	828	760	781
29	790	805	776	810
30	792	790	783	772
31	828	829	794	842
32	802	815	798	815
33	814	805	789	772
34	800	795	776	753
35	806	817	792	800
36	825	839	826	817
37	809	839	794	832
38	819	810	819	784
39	792	817	800	795
40	790	802	758	786
41	816	807	798	800
42	794	817	792	846
43	843	835	832	842
44	800	802	780	800

45	790	800	725	753
46	797	802	808	810
47	800	815	798	811
48	843	835	832	814
49	839	815	789	800
50	819	812	796	798
51	790	798	774	753
52	811	820	789	797
53	795	802	750	766
54	800	810	800	814
55	811	820	796	800
56	790	810	794	750
57	800	805	804	781
58	806	820	794	784
59	805	810	780	784
60	802	815	794	784
61	819	825	789	815
62	790	810	787	800
63	773	823	781	785
64	779	795	771	798
65	828	820	830	808
66	800	839	790	805
67	828	802	796	798
68	843	825	808	810
69	767	815	785	842
70	804	805	796	789
71	816	825	794	811
72	809	812	783	800
73	804	805	766	750
74	787	793	785	790
75	880	825	829	830
76	825	823	787	859
77	800	825	808	829
78	814	810	815	763
79	822	800	785	850
80	794	798	792	795
81	794	815	787	811
82	828	817	783	760
83	790	800	805	818
84	800	810	810	825
85	787	825	789	790
86	804	828	806	820
87	804	820	802	795
88	843	817	808	772
89	782	790	763	766
90	773	783	774	734
91	822	810	789	803
92	816	828	806	795

93	828	825	798	775
94	800	815	790	805
95	792	815	785	756
96	810	820	800	815
97	816	823	792	778
98	805	817	808	814
99	828	839	808	814
100	843	807	832	778

CURRICULUM VITAE

Brandon S. Carter
bscarter21@yahoo.com

EDUCATION

Walden University, Minneapolis, MN
Ed.D. in Administrative Leadership (2008)
Doctoral Study: The Impact of a PLC On Student Achievement
Committee Chairperson: Dr. Casey Reason

Valdosta State University, Valdosta, GA
Ed.S. in Educational Leadership (2004)

Valdosta State University, Valdosta, GA
M.Ed. in Educational Leadership (2001)

Valdosta State University, Valdosta, GA
B.S. in Middle Grades Education (2000)

EMPLOYMENT HISTORY

Brantley County Board of Education, Nahunta, GA
Brantley County Middle School Assistant Principal (2003-Present)

Ware County Board of Education, Waycross, GA
Waycross Middle School 7th Grade Math Teacher (2001-2003)

PROFESSIONAL AFFILIATIONS

Professional Association of Georgia Educators

PERSONAL INTERESTS

Golf
Georgia Football